



BEFORE THE PUBLIC UTILITIES COMMISSION OF THE  
STATE OF CALIFORNIA

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Order Instituting Rulemaking to Implement the )  
Commission's Procurement Incentive Framework )  
and to Examine the Integration of Greenhouse )  
Gas Emissions Standards into Procurement )  
Policies. )

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Rulemaking 06-04-009  
(Filed April 13, 2006)

POST-WORKSHOP COMMENTS  
OF SOUTHERN CALIFORNIA EDISON COMPANY (U 338-E)

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**I.**

**INTRODUCTION**

Pursuant to the Administrative Law Judge's Ruling on Phase 1 Post-Workshop Comments, Schedule, and Other Procedural Matters issued by ALJ Meg Gottstein on July 7, 2006 (Ruling) and the Directions for Phase 1 Post-Workshop Comments issued by the Division of Strategic Planning on June 6, 2006 (Directions) and included as Attachment 2 to the Ruling, Southern California Edison Company (SCE) hereby submits its Post-Workshop Comments (Comments).

**II.**

**DISCUSSION**

The Directions clarify that the Commission wants the parties' post-workshop comments to develop the record further on the policy and implementation issues associated with the Commission's consideration of an interim greenhouse gas (GHG) Emissions Performance Standard (EPS). To further that goal, the Directions include a list of questions related to specific areas discussed at the workshop. In this section, SCE provides answers to those questions.

**A. Threshold Issue: Should the Commission Adopt an Interim EPS?**

**1. An Interim EPS is Not Needed to Prevent “Backsliding,” But if the Commission Adopts It, It Should Apply Only to New Baseload Facility Additions**

Question #1:

If you are in support of an interim EPS, describe the advantages of adopting one. If you recommend that the Commission *not* adopt an interim EPS, present opposing arguments on this issue. *Please initially respond to this question in the context of the “gateway” EPS described in Appendix A (Staff Straw Proposal). If your response would differ based on an alternative EPS design, please so indicate.*

Response to Question #1:

SCE understands the Commission has a desire to implement policies that would result in lower GHG emissions. The Commission fears that before it can implement such GHG policies California IOUs will make long-term commitments to new GHG-intensive facilities designed for baseload operation, such as new pulverized coal plants, a concept referred to as “backsliding.” An EPS, however, is not needed to prevent such “backsliding.” Furthermore, although an interim EPS will do little, if any, to reduce GHG emissions compared to the status quo, an EPS is likely to be complicated and time-consuming, which will unnecessarily burden the IOUs’ procurement processes.

The Commission should analyze carefully whether an interim EPS will produce the desired benefits in light of the interconnected electrical system in the West and the hybrid market structure, which includes a plethora of market participants. The Commission should avoid unnecessary, impractical, and costly policies that produce little more than a political statement.

In any electrical system, actual GHG emissions are produced when fuel is consumed at a generating station in order to generate electrical power. Therefore, the GHG emissions of an electrical system are directly related to both the amount of time a given fossil generating unit is operated to serve load and the inherent GHG emissions profile of that generating unit, which is based on its design criteria and technology.

The “gateway” EPS proposed by the Commission staff will not generally govern how long and how often a generating unit operates. Therefore, the interim EPS cannot affect GHG emissions of that unit or the interconnected system of which it is a part. The duration of operation of a generating unit that is connected to the electrical system is dictated entirely by the “dispatch” decisions required to serve instantaneous load. Load Serving Entities (LSEs), generally, and SCE, under Commission and Federal Energy Regulatory Commission (FERC) orders, must dispatch units in merit order to minimize costs – a concept referred to as “least-cost dispatch.”<sup>1</sup> Least-cost dispatch means that generating units and contracts are dispatched starting with those with the lowest incremental cost and ending with those with the highest incremental cost.

At best, the “gateway” EPS will only be able to influence the type and technology of those new generating stations that would have been built solely based on upfront long-term financial commitments of California’s Investor-Owned Utilities (IOUs) and other LSEs.<sup>2</sup> In doing so, the EPS may achieve its unstated but implicit goal: “no new coal-fired resources should be financed by California IOUs or other Commission-jurisdictional LSEs.” As SCE argued in its pre-workshop comments, however, the Commission already has at least two mechanisms in place to prevent IOUs from making long-term commitments to new coal-fired resources: (i) the GHG adder and (ii) the requirement to obtain the Commission’s pre-approval for any contractual commitment of five years or longer.

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<sup>1</sup> As noted in SCE’s pre-workshop comments, the California Independent System Operator (CAISO) has announced its intention to implement the Market Redesign and Technology Upgrade (MRTU) in November 2007. Under MRTU, the CAISO will operate an Integrated Forward Market and will accept bids from load, all interconnected generators, exports, and imports. Based on these bids, the CAISO will determine the optimal dispatch of generation to serve load, consistent with transmission system constraints. As currently envisioned, this optimal dispatch only takes into account bid prices and transmission and generation operating constraints. It will not consider GHG emissions. Once the CAISO implements MRTU, any Commission decision in this docket will likely be unable to impact GHG emissions, since the CAISO will be operating its Integrated Forward Market to minimize costs in accordance with its tariff and irrespective of the Commission’s decision.

<sup>2</sup> As SCE noted in its Pre-Workshop Comments, once a capacity market is operational and provides stable longer-term price signals, merchant generators and their lenders could again develop and finance new generation projects without a long-term LSE contract. Such projects, however, would not be under the Commission’s jurisdiction. Rather, they would be subject to FERC jurisdiction.



For these reasons, the Commission should refrain from imposing yet another regulatory mandate with associated cumbersome regulatory processes to achieve a result that will be achieved without the new requirement.

If, however, the Commission elects to impose an interim EPS, then it should limit the applicability of the interim EPS to new baseload generation facility additions only. Moreover, it should include exceptions for research and development activities and investments in technologically innovative projects, in order not to inhibit the use of coal — an abundant fuel — if such use generally has the Commission’s preferred environmental attributes for generation technologies and is otherwise consistent with the policies of the state of California.

The “gateway” EPS as proposed in the Staff Straw Proposal will also prevent the IOUs and other LSEs from signing long-term contracts with existing resources that are expected to perform above a certain capacity factor and that do not satisfy the as-yet undetermined “moderate” emissions profile based on existing combined cycle gas turbines (CCGTs). The key question that the Commission must answer in imposing the interim EPS on existing resources is: “Will this requirement prevent backsliding or otherwise reduce GHG emissions?” The answer is: “No.” The existence of long-term contracts will not likely affect the daily dispatch and GHG emissions of existing generating stations that are in the Western Electricity Coordinating Council (WECC), the bulk power and electric transmission system that serves the 14 western states and British Columbia, Canada. If a generating resource is economic on a short-run basis, it will continue to operate and serve load, even if it does not have a long-term contract with a California IOU or other LSE. Thus, virtually identical GHG emissions will likely occur, with or without a long-term contract, regardless of the proposed EPS. On the other hand, the increased cost to the ratepayers is a very real possibility if IOUs or other LSEs cannot sign long-term contracts with existing resources and are forced to procure on a shorter-term basis from the electricity markets.

In summary, the proposed EPS is an overly complicated, ineffectual, potentially costly, and unnecessary standard. If the Commission imposes such a standard, however, it should limit it to

new baseload facility additions only, with exceptions for research and development activity and investment in technological innovation projects.

**2. The Interim EPS is Designed to Achieve the Exact Same Goals as the GHG Adder So the Interim EPS Will Not Provide any Additional Guidance in the Selection of Energy Resources Preferred by the State**

Question #2:

In the context of your answer to #1 above, address whether an EPS serves to address the Commission's goals for procurement differently/better than current procurement policies, such as the current GHG adder. If the GHG adder were significantly increased, would this obviate the need for an EPS, in your view, why or why not? In your response, describe the current purpose and application of a GHG adder relative to an EPS.

Response to Question #2:

The EPS does not address the Commission's goals for procurement any more effectively than the existing Commission procurement policies, such as the GHG adder and the five-year standard regarding Commission pre-approval. In D.04-12-048, the Commission clearly stated that

“[GHG] adders, which are established with reference to a range of market signals and regulatory actions that reveal the future financial risks associated with greenhouse gas emissions, will aid in the selection of those energy resources that are clearly preferred by the state of California.”<sup>3</sup>

The interim “gateway” EPS is designed to achieve the same exact purpose, i.e., to aid in selection of those energy resources that are clearly preferred by the State.

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<sup>3</sup> D.04-12-048, *mimeo*, p. 151.

**B. Implementation/Design**

**3. The Interim EPS Should: (i) Address Reliability Concerns; (ii) Minimize Costs to the Ratepayers; (iii) Be Workable and Administratively as Simple as Possible; and (iv) Be Designed to Prevent Major “Backsliding”**

Question #3:

Assuming that the Commission decides to proceed with an interim EPS, what should be the major design principles/objectives for such a standard? Please identify what you consider to be the *top four priorities* for design criteria, and why. The following is an illustrative list developed from the workshop discussion, but others may be presented and discussed.

The EPS should:

- Be designed to prevent major “backsliding” (and if you choose this design objective, please clearly define your Use of the term “backsliding”);
- Be workable and administratively as simple as possible.
- Address reliability concerns, e.g., be designed to prevent the shutdown of essential facilities;
- Signal development away from high-emitting resources;
- Encourage (as well as not hinder) advanced technology development;
- Minimize costs to ratepayers;
- Minimize the risk of long-term commitments that will raise future compliance costs;
- Other?

Response to Question #3:

The four most important criteria are the ones discussed in the following sections, in their order of priority:

**a) The EPS Should Address Reliability Concerns, e.g., Be Designed to Prevent the Shutdown of Essential Facilities**

The CAISO and the California Energy Commission (CEC) have both forecast a potential shortage of generation in California – particularly in southern California – in approximately two or three years. SCE explained the need for new generation in southern California and the timeline

for bringing new generation on line in its comments in R.06-02-013.<sup>4</sup> Also, in its 2005 Integrated Energy Policy Report, the CEC has forecast that California's peak demand will grow to a total of from 66,656 to 69,473MW in 2016, an increase of about 10,000MW over its 2004 demand.<sup>5</sup> The Commission should consider these data before implementing any policies that have the effect of precluding contracts with certain existing generating units due to their GHG emissions, thereby potentially forcing these generating units into premature retirement. Long-term contracts help assure that generators will continue to be available to the CAISO as a dependable resources. It can take as much as five or six years to permit and construct a new generating plant. Forcing existing units into early retirement would be an extremely unwise policy choice for the Commission to make. It would likely result in a severe strain on the already delicate balance between demand and available supply.

Moreover, as was explained at the workshops, if existing baseload units are retired without suitable baseload units of superior technology to replace them, then the direct result would be that other existing facilities that were designed to operate as peaking or intermediate resources would begin to operate for longer durations to fill the gap. This would result in potentially greater GHG emissions due to the relatively poor efficiency of peaking and intermediate resources.

Finally, imposing an interim EPS on existing resources would likely achieve minor reductions in GHG emissions at best, since dispatch economics dictate existing resources' operating profiles. The Commission should consider the risk to the reliability of the grid during peak-load conditions when it decides whether to adopt the interim EPS for existing resources.

**b) The EPS Should Minimize Costs to the Ratepayers**

An interim EPS is not necessary and would do little if anything to reduce GHG emissions. Given the questionable benefits of an interim EPS, the Commission should ensure that it

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<sup>4</sup> R.06-02-013 is the Commission's proceeding to integrate procurement policies and consider long-term procurement plans. SCE filed its Comments on the Draft Decision of ALJ Brown on New Generation and Long-Term Contract Proposals and Cost Allocation on July 17, 2006.

<sup>5</sup> 2005 Integrated Energy Policy Report, p. 48.

does not impose unfair, asymmetrical, and extraordinary costs on the customers of California IOUs by imposing the proposed interim EPS.

An interim EPS could prove to be costly for California IOUs' customers in a variety of ways. The IOUs' procurement costs could increase if the EPS shrinks the pool of eligible resources with which the IOUs can contract. If other LSEs, such as public power agencies, are not subject to similar restrictions, those agencies will likely take advantage of asymmetrical procurement rules to take advantage of an otherwise economic resource and therefore yield no net benefit with regards to GHG emissions. In addition, if designed poorly, an interim EPS could increase California's dependence on natural gas as a fuel source, which would increase exposure to potentially volatile future natural gas prices. An interim EPS, even if it is designed as a "gateway" standard, would create additional criteria with which the IOUs would have to proactively comply, resulting in substantial compliance demonstration costs.

**c) The EPS Should Be Workable and Administratively as Simple as Possible**

The interim EPS should be simple and easy to apply as well as to administer. Furthermore, it should be designed in a manner that prevents gaming opportunities.

**d) The EPS Should Be Designed to Prevent Major "Backsliding"**

"Backsliding" is a somewhat pejorative term apparently intended to express the concern that, anticipating that the Commission will later adopt policy directives prohibiting certain types of resource commitments, LSEs will preemptively make certain financial commitments in the near term to circumvent the Commission's future design choices and flexibility. "Backsliding" might be a legitimate concern; however, the Commission has already adopted initiatives to discourage such behavior. Thus, further regulatory mandate may not be warranted to serve the same purpose.

If the Commission decides that additional measures are necessary, then consistent with the reasonable, pragmatic definition of "backsliding," the Commission should design the EPS to apply only to long-term commitments that support new GHG-intensive resources. Applying the interim

EPS to prevent five-year contracts with existing resources, which will likely operate no differently without such contracts, is inconsistent with the underlying intent to prevent “backsliding.”

On the other hand, if the Commission wants to proactively change the existing mix of generation resources serving California by the imposition of an interim EPS, that purpose is inconsistent with the goal of preventing “backsliding.” The Commission can reach this goal with the GHG emissions cap-and-trade mechanism that will be developed and implemented in the second phase of this proceeding and should not limit the scope of the interim EPS to preventing true “backsliding.”<sup>6</sup>

**4. An Interim EPS Based Upon Ongoing Operation of a Facility Would Be Impossible to Apply or Enforce**

Question #4:

The first major fork in the road design issue discussed at the workshop was whether the EPS should be a “gateway” threshold versus a standard that applies to the ongoing operation of a facility (built or under contract). The general consensus of workshop participants was that an interim EPS should be a gateway standard that is applied when the load-serving entity (LSE) seeks approval for construction or purchase commitments, based on documentation concerning the expected resource/facility operating characteristics and associated GHG emissions.

Please discuss the relative advantages of this approach and the potential disadvantages. If you believe that the EPS should in fact be applied in a different manner, please describe your proposed approach and the relative advantages/disadvantages of your proposal. Relate your response to this question to the design priorities you articulate under Question #3 above.

Response to Question #4:

Given the complexity of transactions and the various types of electricity contracts in the hybrid electricity markets today, a standard that is based upon ongoing operation of a facility would be impossible to apply or enforce. Furthermore, the procurement framework implemented by the

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<sup>6</sup> SCE has not yet developed its position on the GHG emissions cap-and-trade mechanism and reserves its right to object to it.

Commission pursuant to AB57 is generally based upon “upfront and achievable standards and criteria” embodied in various Commission decisions approving the California IOUs’ procurement plans and its decisions on other procurement related matters. A “gateway” approach would be consistent with such an “upfront” framework.

**5. The Interim EPS Should Not Be Applied to Existing Facilities**

Question #5:

Another fork-in-the-road design issue discussed at the workshops was the application of an EPS to new generation resources as well as to renewal or new contracts with existing facilities. The Staff Straw Proposal applies the EPS to new *commitments* (construction, new or renewal contracts) for both. (See Appendix A.) Please comment on whether you support the Staff Straw Proposal on this issue, indicating your views on the relative advantages and disadvantages of applying the EPS to both new and existing generation facilities (under new commitments). Relate your response to this question to the design priorities you articulate under Question #3 above.

Response to Question #5:

As explained previously, imposing an interim EPS on the LSEs procurement activities with existing facilities will not affect the actual dispatch of those facilities. As such, the interim EPS cannot have any material affect on the GHG emissions from those facilities. Moreover, if these existing resources retire prematurely, a detrimental impact on system reliability will also occur. Most critically, applying the interim EPS to California’s IOUs and other Commission jurisdictional LSEs only, while not applying it to all LSEs in and around California, will virtually guarantee that the existing resources will continue to do business with those LSEs in and around California who are not subject to an interim EPS. This will increase the cost of electricity to California’s IOUs’ customers, while likely not reducing the GHG emission inventory for the state.

**6. An Interim EPS Should Only Cover Commitments to Construct of Five Years or Longer, Since That Will Encompass Contracts for New Generation Development**

Question #6:

There was also general agreement along workshop participants that if adopted, an interim EPS should cover commitments (construction or contracts) five years or longer, which is also reflected in the Staff Straw Proposal. Do you agree? Why or why not? How does this design parameter achieve (or not achieve) the priorities you have identified under Question #3 above?

Response to Question #6:

If the Commission adopts an interim EPS, it should only apply to commitments of five years or longer. As explained previously, an interim EPS will only have practical value if it prevents California's IOUs and other Commission-jurisdictional LSEs from making long-term financial commitments to new baseload resources with a GHG emissions profile higher than a CCGT. Based on the market conditions that exist today, such new resources cannot be built based on short-term commitments less than five years. Generally, SCE acknowledges that developers are currently unable to obtain sufficient financing for a project unless the project is backed by a contract of a minimum of 10 years. Thus, setting the "gateway" threshold at five years or longer will adequately cover contracts for new generation development.

The Commission has authorized IOUs to procure for up to five years within its AB 57-approved procurement plan. The Commission should be consistent in its policies and should not subject the IOUs' procurement activities of less than five years to additional criteria such as the interim EPS threshold. The California legislature has proposed a similar five-year threshold for its GHG mandates. Finally, subjecting shorter-term procurement activities to this interim EPS will further increase the costs of California ratepayers and will impact system reliability.



**7. The Commission Should Only Examine the Amount of the Product For Which an LSE Contracts, Rather Than the Entire Capacity of the Underlying Facility**

Question #7:

Another major design issue discussed at workshops was what the Commission should look at (contract or facility operation) in determining whether the EPS applies. In particular, should the Commission (1) look at the operation of the facility underlying a contract<sup>7</sup>, or (2) only to the amount/product contracted for by the LSE? The Staff Straw Proposal takes the approach that, for specific contracts, the Commission should look at the expected operation and emissions of the facility, rather than just the contracted amount. <sup>8</sup> Please comment on the advantages and disadvantages of these two alternative approaches, and your position on this issue.

Response to Question #7:

The Commission has not yet provided adequate specificity regarding the structure of the standard and the manner in which the Commission will determine compliance with the standard. Presumably, however, in applying a “gateway” EPS, one would have to take into account future administration of the contract or operation of facility over the entire contract life. It would be highly speculative for the Commission to make assumptions about the operation of the portion of the facility not under contract. Any such assumptions made to define the “gateway” standard could result in substantial second-guessing, especially if the underlying market conditions were subsequently to change in any significant way. In this regard, it would be preferable to look only at the cumulative amount of product for which the LSE contracts, as opposed to the entire capacity of the underlying facility.

The Commission can avoid this debate altogether if, as an earlier threshold, it decides to apply the interim EPS only to new facility additions, with exceptions for research and development activity and investment in technologically innovative projects.

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<sup>7</sup> Or, in the case of joint ownership of a power plant, the entire facility being constructed.

<sup>8</sup> As indicated in Appendix A, under the Straw Proposal the Commission would impute an emissions profile for unspecified contracts.

**8. An Interim EPS Should Apply to Resources Operated as Year-Round Baseload and High-Use Intermediate and Shaping Facilities and Should Not Apply to Peaking Facilities or Resources Expected to Operate During Relatively Few Hours of the Year**

Question #8:

There was general agreement during the workshop that an interim EPS should *not* apply to peaking facilities or resources expected to operate relatively few hours during the year. Accordingly, the Staff Straw Proposal uses a definition for “covered resources” as those with an annual average capacity factor of 60% or greater, intending to cover resources operating as year-round base load and high-use intermediate and shaping facilities. Do you believe that this definition of covered resources is appropriate? In responding, please address the following:

A. What types of resources do you believe the EPS should cover and whether you believe the straw proposal capacity factor (60% or greater) metric to define a covered resource will capture those resources.

B. Present an alternative metric(s) for defining “covered resources” that you recommend, if you do not support the Staff Straw Proposal definition.

C. Whether (and if so, how) the EPS should incorporate a research and development exemption for advanced coal or other technologies.

Response to Question #8:

An interim EPS should not apply to peaking facilities or resources expected to operate during relatively few hours of the year and “covered resources” should be defined as those with an annual average capacity factor of 60% or more. This type of EPS would cover resources operating as year-round base load and high-use intermediate and shaping facilities.

An interim EPS should also incorporate a research and development exemption for advanced coal or other emerging technologies. The exemption should allow development of at least a few clean coal projects even if the resulting emissions are somewhat higher than the interim EPS based on CCGT emissions. The information developed by such research could lead to lower emission projects

in the future and the fuel diversity benefits could be substantial for California's ratepayers. The exemption should be applied to all clean coal development projects sited and licensed as long as the EPS is in effect.

Development of clean coal and similar technologies may represent a new way to diversify energy resources and reduce air emissions. While concerns over the adequacy of oil and natural gas supplies and the volatile and high prices of natural gas-related resources are increasing, the economic fundamentals of coal power in the United States are very attractive. New clean coal technologies can improve total coal plant efficiency and such plants emit significantly lower GHGs than traditional coal resources. Coal reserves are relatively abundant, the price of coal has been and is expected to continue to be very stable, and transportation costs are reasonable. SCE is actively involved in the Electric Power Research Institute's (EPRI) "Coal Fleet for Tomorrow" Initiative and Technology Assessment Program (Program 66) to advance the development and application of a portfolio of advanced coal technologies and does not believe that it is appropriate to eliminate such resources from possible consideration as future generation for California at this time.

Significant hurdles exist, however, to using new coal plants to satisfy California's needs in the near/mid term. First, although the clean coal technologies have made great progress in recent years, the technology to sequester GHG emissions has not been fully commercialized. Second, a uniform EPS without exemption for research projects would encourage increased reliance on natural gas rather than support clean coal development.

**9. The EPS Generally Should Apply Only to Existing Resources and Individually to Each Covered Resource, with the Exception of a Renewable Contract Firmed With a Non-Renewable Resource**

Question #9:

Another design issue discussed at the workshop was how the EPS should apply to specified contracts with more than one underlying covered resource (new or existing): Should the Commission apply the EPS to the "blend" of the resources/units, or require that each covered resource meet the EPS individually?

Under the Staff Straw Proposal, each individual covered

resource must meet the EPS, with the exception of a renewable contract firming with a non-renewable resource. In that case, the blend of the two must meet the EPS, rather than the individual resources/units.

Do you agree with this approach? Why or why not? In your response, present your view of the relative advantages and disadvantages of the alternate approaches, and discuss your recommendation in the context of your answer on design priorities under Question #3.

Response to Question #9:

For various reasons explained earlier, SCE does not believe that the EPS should apply to existing resources. With that caveat, the EPS should apply individually to each covered resource, with the exception of a renewable contract firming with a non-renewable resource, in which case, the blend of the two must meet the EPS.

**10. Partial Contracts For Delivered Products That Are Less Than 60% Annual Capacity Factor Should Not Pass Through The Initial 60%-Capacity-Factor Gateway**

Question #10:

In the context of the Staff Straw Proposal, how should the Commission treat partial contracts under the proposed EPS? An example discussed at the workshop was a “summer product” contract for power from a specified coal plant. For partial contracts, should the Commission look at how the facility is operating during the duration of the contract commitment, at the MWhs being purchased relative to the full year of facility operations, or consider other approaches? Would your proposed treatment of partial contracts result in an exemption under the 60% capacity factor rule, even if that underlying facility would be a “covered resource” under average annual operation? Why or why not?

Response to Question #10:

The Commission should simply set an *annual* average 60% capacity factor threshold in deciding whether to apply the “gateway” EPS. Partial contracts for delivered products that do not equate to 60% or greater in annual capacity factor would not need to pass through the gateway,

regardless of the manner in which the underlying facilities are likely to operate during the remainder of the year, if known. In adopting this approach, the Commission should keep the goal of discouraging “backsliding” and facilitating GHG emission reductions in mind and not be swayed by impractical ideology that would merely preclude electricity products that will be extremely useful in balancing an IOU’s resource portfolio based on the mandated “least cost/best fit” criteria, while not impacting the actual operations or longevity of the underlying resource.

The Commission’s example of a “summer only” product being purchased from a specified coal plant is unrealistic. As a practical matter, coal-fired power plants, with their low incremental cost profile, do not sell their plant output for summer months only. The following are a few examples of types of partial contracts:

- A specific amount of MWs, either from specified units, or as system or portfolio sale, to be delivered during a specific period of time that may be shorter than 24x7, 365 days per year.
- Delivery of the entire output of a generating facility, for a specific period of time that may be shorter than 24x7, 365 days per year.
- An exchange of MWs, where one seller agrees to sell a product during certain time of the day and/or year, and the buyer agrees to return the same or similar products at some other time of the day and/or year.

The Commission could destabilize the hybrid electricity market structure and the products that have been developed to facilitate this market structure if it promulgates rules that dictate what sort of transactions can and cannot occur based on speculative assumptions about the operating characteristics of underlying resources, including imputing emissions characteristics.

The Commission can avoid this debate altogether if, as an earlier threshold, it decides to apply the interim EPS to new baseload facility additions only, with exceptions for research and development activities and investment in technological innovation projects. Modern day developers are not likely to gamble and build new merchant generating stations – coal-fired or otherwise – in the expectation of selling its output on a partial basis after the plant is built.

**11. Exemption From The Standard For Specified Units Of 25 MW Or Smaller, Based On The Size Of The Facility Under Construction Or Providing Power Under A Contract**

Question #11:

The Staff Straw Proposal allows for an exemption from the standard for specified units of 25 MW or smaller, based on the size of the facility under construction or providing power under a contract. However, there would be no size exemption for unspecified contracts of any size. In commenting on this aspect of the Straw Proposal, please address the following:

Responses to Question #11's subparts:

**a) An Exemption for Small Generators is Inappropriate**

Question #11a:

The MW level of the "small unit" exemption under this proposal. Do you support this exemption as proposed? Would you propose a different size exemption level and/or one specifically tied to projects qualifying under the self-generation incentives program? No exemption? Why or why not?

Response to Question #11a:

An exemption is inappropriate because "small" generators may typically produce more GHG emissions per kWh due to their relative inefficiency compared with much larger plants. Given that the application of the EPS is for financial commitments made by Commission jurisdictional LSEs, the lack of an exemption has no bearing whatever on distributed generation that is financed and owned by customers.

**b) The Self-Generation Incentive Program Would Be Exempt From the Straw Proposal's Limit of 25 MW, Since the SGIP Maximum Limit is Currently 5 MW**

Question #11b:

Basing the exemption on MWs delivered to the grid. In determining eligibility for the size

exemption, the Staff Straw Proposal would subtract out self-generated power that was not delivered to the grid.

i. Please indicate whether you agree with this approach to determining the size exemption, why or why not?

ii. If the Commission adopts this approach, what type of information (and source of data) would need to be presented for the commission to determine the amount of expected self-generation to subtract from the unit size?

Response to Question #11b:

Currently, the maximum size for the Self-Generation Incentive Program (SGIP) is 5 MW. With a 25 MW or a 20 MW limit, the SGIP would be exempt.

**c) The Commission Should Look at the Size of the Contract and not at the Size of the Underlying Unit for Determining Exemptions from the Gateway EPS**

Question #11c:

Basing the exemption on the size of the unit being constructed or underlying a unit-specified contract, rather than the size of the contract. Please discuss the relative advantages and disadvantages of these alternate approaches to a size exemption, and indicate which you would recommend, should the commission determine that a size exemption would be appropriate. (You may refer to your answer to the related Question 7, as appropriate).

Response to Question #11c:

The Commission should only look at the size of the contract and not at the size of the underlying unit, for purposes of establishing any exemption from the “gateway” EPS.

**d) The Commission Should Allow The Same Size Exemption To Non-Unit Specific Contracts As It Plans To Do For Unit-Specific Commitments**

Question #11d:

No size exemption for any unspecified contracts.  
Do you support this approach? Why or why not?

Response to Question #11d:

No. First, as discussed above in response to Question No. 15, the Commission should not apply a “gateway” EPS to contracts that do not have specified units supporting them. If, however, the Commission decides to impose an EPS on non-unit specific contracts, then it should consider the impracticality and likely *de minimis* benefit of subjecting very small contracts to the “gateway” EPS. The Commission should allow the same size exemption for non-unit specific contracts as it plans to do for unit-specific commitments.

## **12. Questions Related to a Dual Standard**

Question #12:

Under the staff straw proposal, the commission would develop two separate standards for covered resources: 1) a “moderate” EPS to apply to existing resources and repowering and 2) a “high” EPS to apply to new resources. Both would be based on the performance of a combined-cycle gas turbine (CCGT). Please address the following questions in your comments on this approach:

Responses to Question #12’s subparts:

- a) The Dual Standard Makes Sense, But The Commission Should Also Consider Altitude, Humidity, Seasonality, And Weather Conditions In Addition To The Age Of The Facilities In Defining The Scope Of The Two Standards, With Exemptions For Older Technology Needed For System Reliability**

Question #12a:

Do you agree in concept with a dual standard as outlined in the Staff Straw Proposal, why or why not?

Response to Question #12a:

To the extent covered resources include existing resources, the Commission must adopt a different and more accommodating standard in order not to penalize natural gas-based generation resources that may not reflect the best available technology. The Commission should not apply the new CCGT standard to resources that were built in reliance on existing rules and regulations, especially if those resources do not have any way to satisfy such a new GGCT standard.



CCGT technology has demonstrated a continuous improvement in terms of heat rate efficiency and emissions during the last decade. Therefore, significant differences exist between “old” (e.g., 30 years old), “newer” (e.g., 10 years old), and “newest” (current technology) facilities. While it is probably not technically possible to retrofit the existing CCGT facilities to satisfy an interim EPS standard based on the newest technology, requiring the latest and a higher EPS standard for newly constructed facilities is possible.

The dual standard therefore makes sense. The age of the facilities, however, should not be the only characteristic considered in defining the scope of the two different standards. Altitude, humidity, seasonality, and weather conditions should also be considered. In addition, if a facility using older technology is needed for system reliability purposes, then it may need to be exempt from the standards in the short term in order not to inhibit system reliability.

**b) SCE Recommends a “High” Performance Standard of 8,500 Btu/kWh Apply to New Baseload Resources and, to the Extent the Commission Decides to Impose an Interim EPS on Existing Resources, SCE Recommends a “Moderate” Performance Standard of 10,000 Btu/kWh Apply to Existing Baseload Resources**

Question #12b:

If the Commission adopted this approach, what performance standard do you recommend for the “moderate” and “high” EPS? Express your answer in terms of heat rates as a proxy for GHG emission rates. Explain why you chose these levels, and the source of data/calculations you used to develop them.

Response to Question #12b:

As previously indicated in SCE’s responses to data requests, the Commission should not base the interim EPS on the expected emissions from the current stock of available new generation. Restricting the emissions to the lowest possible from only one specific technology will harm the markets for competing generation. The standards may need to be different based on the type of equipment that needs to be installed. If an entity (i.e., an LSE) needs a smaller CCGT, then that entity cannot be expected to meet the efficiency standards of a larger unit due to the technical impossibility of

such a requirement. In other words, a CCGT with the combined output of 200 MW may have different emissions than a CCGT with the combined output of 590 MW. Each installation will use different turbines and other associated equipment, thus, the efficiencies will be different.

SCE recommends a “high” performance standard of 8,500 Btu/kWh apply to new baseload resources and, to the extent the Commission decides to impose an interim EPS on existing resources, SCE recommends a “moderate” performance standard of 10,000 Btu/kWh<sup>9</sup> apply to existing baseload resources. The Commission could also impose a simultaneous limit on GHG emissions at the rate of 1,000 lbs/MWh as the “high” EPS and at the rate of 1,400 lbs/MWh as the “moderate” EPS.

**c) The Commission Should Not Apply a Single EPS Based on the Performance of a CCGT to All New Commitments, but if the Commission Does Adopt Such a Single Standard, the Standard Must Allow All Existing and New CCGTs to Satisfy the Standard**

Question #12c:

If instead you recommend a single EPS based on the performance of a CCGT for all new commitments (whether to new resources, existing or repowered facilities), provide your recommended performance standard (expressed as a heat rate), explain why you chose this level, and the source of data/calculations you used to develop it.

Response to Question #12c:

A single EPS based on the performance of a CCGT for all new commitments, especially if the Commission considers existing resources to be covered resources, is unreasonable. Nevertheless, if the Commission decides to use a single standard, then it must be appropriately constructed so that all new and existing CCGTs would be able to meet the standard.

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<sup>9</sup> This assumes the Commission will impose the interim EPS on resources that operate at 60 percent capacity factor or above. If, however, the Commission decides to impose the EPS on resources that operate at 50 percent or above, then the moderate performance standard should be 12,500 Btu/kWh.

**d) The Commission Should Adopt a Moderate and Reasonable Emission Factor For Existing Technology So As Not to Limit the Units That Can Meet the Requirement in the Short Term**

Question #12d:

In responding to b and c above, be specific as to how you developed your CCGT reference standard and the data sources/calculations used. For example, did you base it on the expected performance of a modern CCGT newly placed in service, or at the end of its useful life, or an average of emissions from existing CCGTs, or another approach?

Response to Question #12d:

If the Commission applies the standard only to newly constructed resources, then it should be based on the theoretical expectations of such resources with a minor increase due to the complexity of operating new plants exactly as designed. If the standard also applies to new contracts from the existing stock of CCGT resources, then the Commission must recognize that such resources are not as efficient as new resources and should adjust the emission factors accordingly. Given this reality, the Commission should adopt a moderate and reasonable emission factor for existing technology so as not to limit the units that can meet the requirement in the short term. If stricter limits are necessary, then the Commission should invite more discussion and analysis to ensure that system reliability will not be jeopardized using such requirements. SCE has generally used the data prepared in response to Question #3 of the Division of Strategic Planning's (DSP's) post-workshop questions in making its recommendations above.

**e) SCE Has No Alternative Recommendations for the EPS Standard**

Question #12e:

If you have alternate or additional recommendations for the EPS standard and calculation, please submit them.

Response to Question #12e:

SCE has no alternative recommendations for the EPS standard.

**13. The Staff Straw Proposal Overstates the Potential of the Recoverable Waste Heat to Perform Useful Work, So the Commission Should Consider a Discount Factor For Thermal Output Such as the Fifty Percent Factor Used By the FERC For Topping Cycle Cogeneration QF Efficiency**

Question #13:

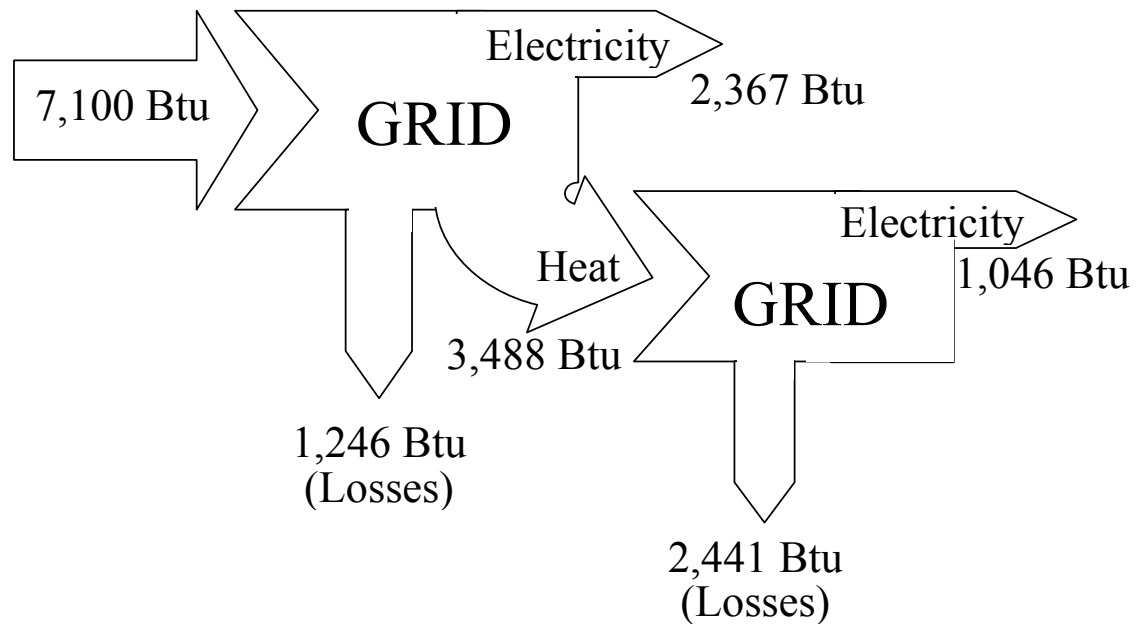
There was general agreement at the workshop that the Commission should allow credit for cogeneration thermal load when applying the EPS to covered resources. This is reflected in the Staff Straw Proposal. Do you agree with this approach, why or why not?

If you have developed a specific formula for the calculation of such a credit, please provide it in an attachment to your post-workshop comments, or in a separate joint submittal at the same time (if you are joining in with other parties on this issue). Indicate whether it is consistent with methods used to credit thermal loads in other emissions regulations for cogeneration facilities, either in California or elsewhere.

Response to Question #13:

A cogeneration or combined heat and power (CHP) application can be an efficient energy conversion process because it recycles the heat that would otherwise be wasted. However, the Staff Straw Proposal overstates the potential of the recoverable waste heat to perform useful work. All BTUs of waste heat are not the same. High temperature waste heat can create more useful work than lower temperature waste heat. For this reason, the Commission should consider a discount factor for thermal output such as the fifty percent factor used by the FERC for topping cycle cogeneration QF efficiency. Assuming the recovered heat is 100 percent convertible into electricity unreasonably skews the proposed CHP credit and is not based on sound thermodynamic analysis. Stated another way, the Commission should not use a First Law of Thermodynamics (First Law) approach (energy), but should instead use a Second Law of Thermodynamics (Second Law) approach (exergy). The available work associated with the reusable heat is application specific and can vary widely among facilities.

The “electric power plant” outlined in the Staff Straw Proposal represents a generic CCGT, which utilizes a similar heat recovery process as a CHP and should be diagramed as follows:



The net electricity and losses in the diagram above are equal to those shown in the Staff Straw Proposal. According to the Proposal, a CCGT would be considered over 80%  $([2,367 + 3,488] / 7,100)$  efficient if all of the recovered heat were converted to useful energy without further consideration of downstream losses—in other words, a First Law energy balance-based analysis. In fact, as in any heat conversion process, there are losses in the conversion of waste heat (3,488 Btu) into useful work (1,046 Btu). This is the real world result from the Second Law. In order to make a fair comparison, a Second Law analysis discount factor needs to be applied to the recovered heat in a CHP application. This factor will vary significantly from one application to another (the Carnot heat engine efficiency being the theoretical limit). However, generic loss factors could be developed for broad CHP applications based on the heat-to-power output ratio.

**14. SCE Has No Proposal On the Manner in Which to Calculate the Net Emission Rates From Renewables**

Question #14:

Do you have a position on how to calculate the net emission rates from renewables (e.g., for waste-to-energy, geothermal resources) for the purpose of applying the EPS? If so, please present your views either in your individual post-workshop comments or jointly with other interested parties at the same time.

Response to Question #14:

SCE has no specific proposal at this time. It should be noted that many “renewable” technologies produce GHG emissions. However, developing a one-size fits all approach, even on a technology or fuel specific basis, could produce unintended and perverse results. Further consideration of this issue is appropriate, perhaps in a follow-on workshop dedicated exclusively to GHG emissions associated with renewable technology and fuel combinations.

**15. The Commission Should Not Subject Existing Resources, Including Non-Unit-Specific Contracts, to the Interim “Gateway” EPS**

Question #15:

There was discussion during the workshop on how to address unspecified contracts, i.e., what imputed emissions factor to use. The following alternatives were identified:

- a. Western Energy Coordinating Council (WECC) system average;
- b. Appropriate geographic average (e.g., Northwest purchases represent different resources than purchases from the Southwest);
- c. California Energy Commission (CEC) “net system power” calculations;
- d. Default to coal emission rates.

Please discuss your recommended approach, and why. Be as specific as possible as to the source of the data (or specific numbers) you would use for this purpose.

Response to Question #15:

The Commission should not subject non-unit-specific contracts to an interim “gateway” EPS. As discussed in the workshops, subjecting such non-unit-specific contracts to an EPS would require that the Commission provide for an imputed emissions factor for such non-unit-specific contracts. If it does so, the Commission will set up a binary scheme. Either all non-unit-specific contracts will pass the “gateway” EPS and thereby render the entire exercise meaningless, or none of the non-unit-specific contracts will pass the “gateway” EPS, which will essentially prohibit IOUs and LSEs from signing any non-unit-specific contracts of five years or longer. In addition, based upon the imputed emissions profile and how it is calculated, it is possible that all non-unit-specific contracts could

pass the EPS in one year (*e.g.*, in an above-average-hydro year) and fail in another year (*e.g.*, a below-average-hydro year).

The Commission should nevertheless recognize that non-unit-specific contracts are an essential part of the hybrid market structure today and are critical in hedging the energy cost exposure to the IOUs' ratepayers. The Commission should neither preclude non-unit-specific contracts from being an integral part of an IOU's portfolio, nor create artificial and costly programs just for the sake of creating an illusion of due process.

To summarize, the Commission should apply the interim "gateway" EPS to new facility additions only, with limited exceptions for research and development activity and investment in technological innovation projects. It should not subject existing resources, including non-unit-specific contracts, to the interim "gateway" EPS.

**16. In Addition to a Reliability "Safety Valve," the Commission Should Also Implement an "Economic Safety Valve" on a Case-By-Case Basis For the Use of Offsets to Help a New Contract Satisfy the Interim EPS**

Question #16:

The Staff Straw Proposal does not include offsets or market price safety valves under the interim EPS, but does provide for a case-by-case reliability "safety valve" review by the commission. (See Appendix A). Please comment on this aspect of the proposal, and provide your recommendations.

Response to Question #16:

A reliability "safety valve" review by the Commission is reasonable. The Commission must not jeopardize system reliability by implementation of an interim EPS. In addition to a reliability "safety valve," the Commission should also implement an "economic safety valve." The Commission should also provide for offsets without geographic restrictions, which are real, durable, measurable, and in addition to other measures that the Commission imposes by regulation beyond the carbon adder, including the interim EPS. If the projected emissions of newly contracted for resources are projected to exceed the EPS, then the LSE should have the option to offset the amount of emissions that exceed the

EPS. At the minimum, the Commission should allow for an economic “safety valve” on a case-by-case basis for the use of offsets to help a new contract satisfy the interim EPS.

**17. Any Interim EPS Must Apply Equally to All Energy Service Providers, QFs, and Other Jurisdictional LSEs in Order to Level the Playing Field, Minimize the Opportunity For Leakage, Prevent Inequity Between Bundled Customers Served By IOUs and Customers of Other Retail Providers, and Avoid Reshuffling Of Resources From the IOUs to LSEs Not Subject to the EPS**

Question #17:

From a policy perspective, please discuss whether energy service providers, qualifying facilities (QFs) and other jurisdictional load-serving entities (LSEs), including multi-jurisdictional utilities, should be subject to an interim EPS along with PG&E, SCE and SDG&E, should the commission decide to adopt one. Limit your comments to policy considerations, rather than legal argument.

If you have considered the issue of how the Commission would apply an interim EPS to multi-jurisdictional utilities, please present a protocol for allocating emissions among resources serving multiple states with your post-workshop comments.

Response to Question #17:

All energy service providers, QFs, and other jurisdictional LSEs, including multi-jurisdictional utilities, should be subject to an interim EPS. Any interim EPS policy that the Commission adopts must apply to all LSEs, which will level the playing field and minimize the opportunity for leakage. If the Commission applies the new policy only to IOUs and LSEs, then it will create inequity between bundled customers served by IOUs adhering to the new standard and the customers of other retail providers that need not follow the standard. Furthermore, such inequity is likely to result in the reshuffling of resources from the IOUs to those non-jurisdictional LSEs that are not subject to the EPS, which will negate the policy outcome the Commission seeks to achieve.



**18. An Interim Gateway EPS Should Simply Be One More Demonstration in the Pre-Approval Application That IOUs Submit to the Commission, Then No Further Compliance Tracking, Monitoring, or Demonstration Requirements Should Exist**

Question #18:

If the Commission adopted an interim gateway EPS modeled after the Staff Straw Proposal, what documentation should it require “at the gate” with respect to 1) meeting the small size exemption, including amount of power delivered to the grid (for self-generation), 2) demonstrating whether the new commitment meets the “covered resource” definition or not, 3) claiming the cogeneration thermal load credit and 3) other requirements of the EPS?

Should there also be compliance requirements under this gateway approach (e.g., with respect to unspecified contracts), and if so, what should they be?

Response to Question #18:

The Staff Straw Proposal proposes to impose the interim “gateway” standard on contracts five years or longer. The Commission has previously ordered IOUs to present any contract with a term of five years or longer for Commission pre-approval. SCE believes that an interim gateway EPS will simply be one more demonstration in the pre-approval application that the IOUs will submit to the Commission. Under the proposed gateway approach, once a contract or facility passes all of the gateway criteria, no further compliance tracking, monitoring, or demonstration requirements should exist.

**19. SCE Does Not Have a Specific Recommendation, but Notes that Current Commission Decisions Require a Transfer of All “Renewable Attributes” to the Purchasing LSE as a Standard Term in All New Renewable Portfolio Standard Contracts, Which Presumably Would Include “Attributes” Associated With GHG Reductions**

Question #19:

Staff Straw Proposal raises the issue of how to attribute emissions factors to renewable resources that have sold off their renewable energy credits (e.g., to municipal utilities) for the purpose of applying the EPS. There was some discussion of this “null power” issue at the workshop.

Options discussed included imputing an emissions rate from the WECC region or from the region where the renewable power was located, or using the CEC's "net system power" calculation as a default emissions rate. If you have a recommendation on this issue, please provide it in your comments.

Response to Question #19:

SCE does not have a specific recommendation. However, current Commission decisions require a transfer of all "renewable attributes" to the purchasing LSE as a standard term in all new Renewables Portfolio Standard contracts. Presumably, this transfer would include "attributes" associated with GHG reductions. SCE is unaware of any renewable project currently under contract with SCE that has transferred such attributes to a third party.

**20. The Commission Must Be Consistent in Its Various Proceedings and Should Provide a Sunset Provision**

Question #20:

Please comment on any other aspects of the Staff Straw Proposal and alternative EPS designs for Commission consideration that are not covered in your answers to previous questions.

Response to Question #20:

SCE has two suggestions. First, the Commission must be consistent in its various proceedings and must not adopt regulations in one that are at cross purposes with those regulations adopted in other proceedings. For example, in its Resource Adequacy proceeding, the Commission's primary goal is to ensure that sufficient capacity exists in California to serve load. In this proceeding, however, the Commission appears to be discouraging LSEs from making such long-term commitments, unless the resource meets the yet-to-be determined EPS. In addition, the Commission should coordinate this GHG OIR proceeding with the 2006 procurement proceeding, since the interim EPS is directly relevant to IOUs' procurement activities.

Second, staff proposes that the EPS be "interim measure for an unspecified period of time" and that the Commission re-evaluate the program when a GHG cap-and-trade system or other

equivalent policy (CPUC, state, regional, national) is implemented. The Commission should decide now that the EPS is an interim measure that will sunset when the Commission or the state adopts a cap-and-trade program for GHG emissions or another applicable policy.

**21. SCE Has Used the Historical Data Provided in Response to DSP's Post-Workshop Question #3 to Recommend a Set of Emission Performance Standards that Would Not Jeopardize the Reliability of the Electrical System**

Question #21:

As reiterated in Judge Gottstein's September 30, 2006 notice to the service list, the utilities and other workshop participants agreed to prepare information/analysis on topics related to the threshold policy and implementation design considerations for an interim EPS. Some of this information will be available and distributed to the service list prior to the preparation of post-workshop comments.

As appropriate, please comment on how you have used this information in developing your post-workshop comments. What additional information/analysis do you believe would be useful to the Commission in considering the policy and implementation questions posed above?

Response to Question #21:

SCE has used the historical data provided in response to DSP's post-workshop Question #3 to recommend a set of emission performance standards that would not jeopardize the reliability of the electrical system.

**III.**

**CONCLUSION**

SCE respectfully submits its answers to the questions asked in the Directions.

Respectfully submitted,

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/s/

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July 27, 2006

**CERTIFICATE OF SERVICE**

I hereby certify that, pursuant to the Commission's Rules of Practice and Procedure, I have this day served a true copy of POST-WORKSHOP COMMENTS OF SOUTHERN CALIFORNIA EDISON COMPANY (U 338-E) on all parties identified on the attached service list(s). Service was effected by one or more means indicated below:

Transmitting the copies via e-mail to all parties who have provided an e-mail address. First class mail will be used if electronic service cannot be effectuated.

Executed this **27th day of July, 2006**, at Rosemead, California.

/s/

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Tuesday, July 25, 2006

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